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WILHELM EDUARD WEBER.

WILHELM EDUARD WEBER was born in Wittenberg, October 24, 1804. He was the second of three sons, all of whom became eminent. He was early interested in scientific pursuits, and while yet a student he investigated the phenomena of waves, and with his brother Ernst published a treatise on the subject which has ever since been considered a classic on wave motions. One of the discoveries first made known here was that the particles on the surface of a liquid when there is an advancing wave, all revolve in vertical circles in the plane of the direction of propagation of the wave, while the particles lower down move in ellipses whose vertical axis becomes smaller and smaller as the particles are deeper. This work was issued in 1825, when Weber was but twenty-one years of age. In 1826 he took his doctor's degree at the University of Halle, and was then appointed Privat-docent, and Professor Extraordinary of Physics in 1828.

In 1831 he was called to Göttingen to succeed J. T. Mayer in the Chair of Physics. Here, he with his brother Eduard investigated the mechanism of walking, and this resulted in a treatise on the subject in 1833. This too was a work of high rank. He also published several important papers on acoustics. It will be remembered that it was in these years that Faraday had entered upon his work as a discoverer in electricity and magnetism, and during which he had made known the mechanical relations between magnetism and electricity, and led the way to many devices for utilizing magneto-electric currents. Weber and Gauss were among the first to apply the newly discovered properties to the purposes of telegraphy, and in 1833 they constructed a telegraph connecting the Physical Laboratory of the University with its Observatory, a distance of about three-quarters of a mile. The first use of their devices was to compare the clocks at the two stations, but the line was also used for telegraphic purposes proper. At first only about two letters per minute could be transmitted; nevertheless, in Germany these two are still considered to be the inventors of telegraphy.

In 1837 a new King began his reign in Hanover. His notions of his prerogatives were such that he suspended the constitution, and this called forth vigorous protests from several of the professors at the University, Weber among them. To punish them, seven Professors were dismissed from their chairs, and three were even banished from the country. Weber was thus forced into retirement for some years. In 1843 he was invited to the Chair of Physics

at Leipzig, but he returned to his former position in Göttingen in 1849.

The chief contributions to science, those for which he is now best known, and will long continue to be known, are, first, a series of papers beginning in 1846, and continued at intervals to 1864, in which he for the first time showed how the principles of absolute measurement which Gauss had applied to magnetism were applicable to electricity. Until Weber's work there had been no such thing as electrical measurements. There had been nothing more than comparisons between magnitudes of the same kind. Weber showed how an electrical quantity could be stated in terms of the unit of time, length, and mass, without any reference to other electrical phenomena, and this was a new and great achievement. The British Association Committee on Electrical Standards adopted Weber's work as a basis for their standards of units.

Secondly, he was one of the first to feel the necessity for an adequate mechanical conception of electro-magnetic phenomena, and he worked out in a mathematical way, and gave consistency to the idea of molecular magnets, that is, that every molecule of iron is a magnet by constitution, and the various phenomena of the magnetic field are due to the relative positions of these molecules. It hardly needs to be said, that all the known phenomena of magnets, up to date, tend to corroborate and strengthen that conception.

He was an honorary member of many of the learned societies of Europe, as well as of the American Academy.

He died on June 23, 1891, and was therefore eighty-seven years of age.

The names of five persons have been dropped from the list of Resident Fellows on account of removal from the Commonwealth or non-payment of assessments.

The Academy has received an accession of ten Resident Fellows, and two Associate Fellows.

The Roll of the Academy, corrected to date, includes the names of 176 Fellows, 87 Associate Fellows, and 65 Foreign Honorary Members.

MAY 24, 1892.